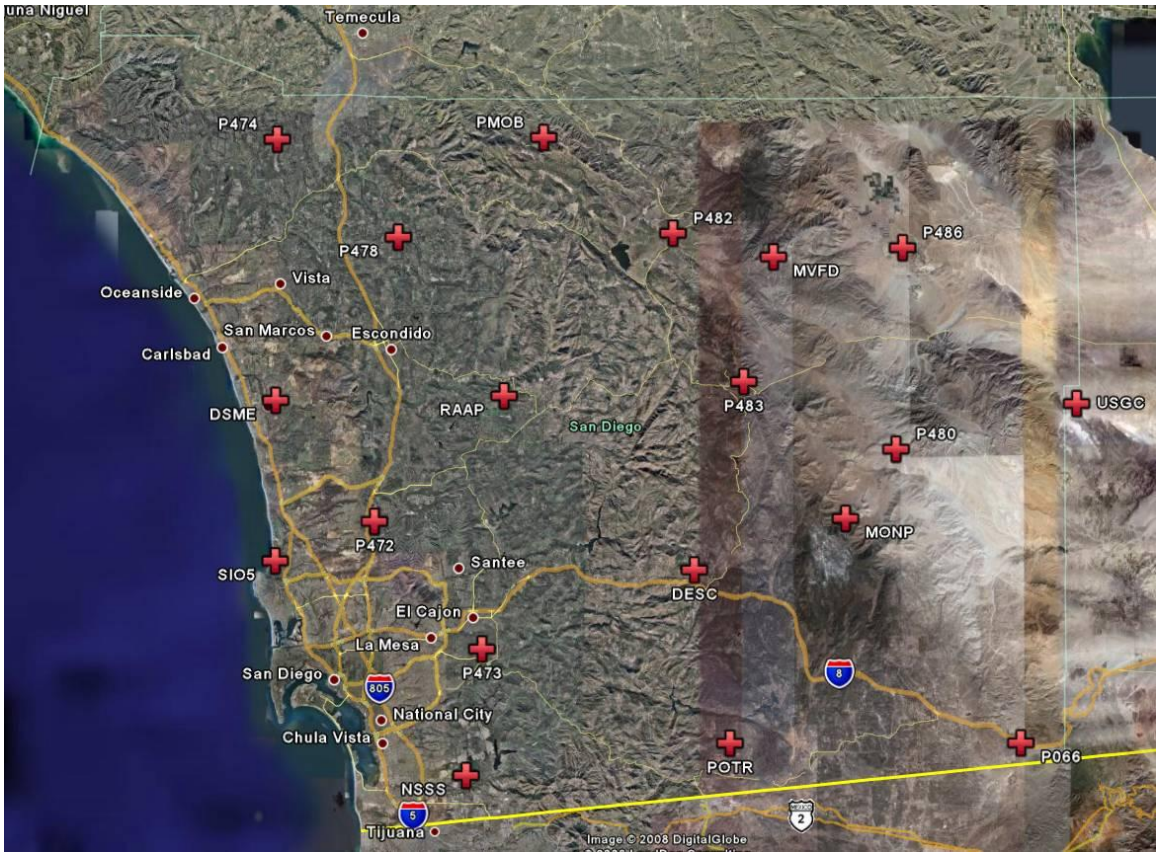
Procedures for Using the San Diego County Real Time Network (SDCRTN) **updated 10-15-2010**



Map provided by Google Earth

DISCLAIMER

San Diego County provides the SDCRTN as a service to the general surveying community. The County makes no expressed warranty or guaranty as to the accuracies of the resultant coordinate values or their use. Use of the SDCRTN should only be attempted by experienced professionals, licensed to practice land surveying in the State of California.

The County makes no expressed warranty or guaranty that on any given day the network or any part thereof will be up and running. The County will however, endeavor to post the current day status of the system or future planned service outages on our webpage.

The County is not responsible for the configuration of the different types of equipment utilized by the private sector professional in connection with the use of the SDCRTN. If you have specific questions, please direct them to your equipment supplier/representative.

The San Diego County Real Time Network (SDCRTN) consists of 19 Continuously Operating Reference Stations (CORS) distributed through-out the county. The measurement data from these CORS along with the North American Datum 1983 (National Spatial Reference System 2007) 2009.00 epoch coordinates of the CORS is made available at no charge to the public. A survey grade Global Positioning System (GPS) receiver and antenna along with a wireless data modem (and service) is all that you need to get started.

Surveying:
The SDCRTN is a cluster of Real Time Kinematic (RTK) base stations with the data from each base station available to the RTK user via a wireless broadband connection. To access a particular base station the user connects to the California Real Time Network (CRTN) server at the Scripps Orbit and Permanent array Center (SOPAC) and the site specific port (for example: to connect to station 'MONP' the modem would connect to 132.239.152.74.8043). For additional details see: http://sopac.ucsd.edu/input/realtime/CRTN_Access.xls
Once the connection is established and the data is streaming to the ROVER receiver, the ROVER receiver software will combine the base station and rover data, and utilizing the base station coordinates, attempt to solve for a "fixed" solution. The quality of the solution is dependent on the same factors that determine the quality of a traditional RTK solution (baseline length, satellite availability and geometry, atmospheric conditions, multipath, etc.). The RTK receiver specifications should be consulted for more details.

Equipment:
Single frequency receivers will work, however due to the long baselines, dual frequency receivers are recommended. The modem must be able to stream the Radio Technical Commission for Maritime Services (RTCM) data via TCP/IP to the receiver. Verizon and Sprint are providers of mobile broadband within San Diego County. Currently, San Diego County field crews use Leica SR530 receivers with Airlink Raven Code Division Multiple Access (CDMA) modems.

Base Station Coordinates:
The broadcast coordinates for the reference stations are NAD83(NSRS 2007) 2009.00 epoch adjustment. The reference station coordinates can be found at the California Spatial Resource Center (CSRC).
(http://csrc.ucsd.edu/input/csrc/csrsEpoch2009.00.xls).

Port Assignment and Reference Station Coordinates - NAD83 (NSRS2007) 2009.00 Epoch

CRTN Server at SOPAC IP: 132.239.152.74

Site	Port	City	NAD83(NSRS2007)Epoch2009.00		GRM*
I.D.	RTCM2.3		Latitude	Longitude	Ellipsoid Elev.
					U.S. Feet
desc	8058	Descanso	32 49 47.694460	-116 38 30.423733	3143.205
dsme	8030	Encinitas	33 02 11.305748	-117 14 58.278517	186.612
monp	8043	Laguna Mountains	32 53 30.971793	-116 25 20.410679	6047.651
mvfd	8045	Ranchita	33 12 39.129083	-116 31 31.080746	3906.977
nsss	8062	Chula Vista	32 34 45.521687	-116 58 21.607636	408.009
p066	8059	Jacumba	32 36 59.474806	-116 10 11.184029	2702.300
p472	8040	San Diego	32 53 21.138711	-117 06 16.852459	454.744
p473	8055	Jamacha	32 44 1.579514	-116 56 58.205096	621.170
p474	8056	Fallbrook	33 21 18.679972	-117 14 55.240781	602.544
p478	8057	Valley Center	33 14 8.559476	-117 04 17.676146	1221.537
p480	8041	Vallecito	32 58 33.570347	-116 20 54.677740	1433.054
p482	8048	Warner Springs	33 14 24.630678	-116 40 17.035056	2885.391
p483	8060	Julian	33 03 32.975454	-116 34 9.521258	4515.460
p486	8049	Borrego Springs	33 15 36.674407	-116 19 20.180005	416.815
pmob	8019	Palomar Mountain	33 21 26.050094	-116 51 34.318334	5456.917
potr	8051	Potrero	32 37 6.268505	-116 35 27.057369	2398.431
raap	8027	Ramona	33 02 32.034563	-116 55 2.044582	1298.471
sio5	8021	La Jolla	32 50 26.631573	-117 14 58.832725	611.171
usgc	8018	Ocotillo Wells	33 01 48.215907	-116 05 7.156057	440.292

* GRM = ground reference monument
RTCM2.2 broadcast on 7000 series ports
RTCM3.0 broadcast on 6000 series ports
Raw data broadcast on 9000 series ports

Reference Station Coordinates – California Coordinate System 1983 (NSRS2007) 2009.00 Epoch

Site	City	CCS83(NSRS2007)Epoch2009.00		GRM*
I.D.		Northing	Easting	NAVD88 Elev.
		U.S. Feet	U.S. Feet	U.S. Feet
desc	Descanso	1881968.120	6441315.074	3247.55
dsme	Encinitas	1958366.104	6255349.651	299.75
monp	Laguna Mountains	1904352.030	6508764.162	6152.00
mvfd	Ranchita	2020463.164	6477463.532	4010.86
nsss	Chula Vista	1791332.117	6339040.515	520.95
p066	Jacumba	1804108.624	6586371.159	2808.88
p472	San Diego	1904389.840	6299297.704	566.676
p473	Jamacha	1847482.281	6346554.408	732.047
p474	Fallbrook	2074324.478	6256718.973	711.944
p478	Valley Center	2030380.574	6310453.304	1329.172
p480	Vallecito	1934905.829	6531452.136	1539.644
p482	Warner Springs	2031275.540	6432821.266	2989.097
p483	Julian	1965301.979	6463833.271	4618.979
p486	Borrego Springs	2038304.393	6539573.948	524.648
pmob	Palomar Mountain	2074152.986	6375547.539	5560.004
potr	Potrero	1804957.306	6456710.110	2504.751
raap	Ramona	1959647.162	6357195.242	1405.630
sio5	La Jolla	1887149.281	6254619.637	726.001
usgc	Ocotillo Wells	1954604.054	6612139.179	550.366

* GRM = ground reference monument
NAVD88 elevations calculated using GEOID03